(2) A continuously monitored, failsafe grounding system is provided that will maintain the frame of the equipment and the frames of all accessory equipment at ground potential. Also, the equipment, including its controls and portable (trailing) cable, will be deenergized automatically upon the occurrence of an incipient ground fault. The ground-fault-tripping current shall be limited by grounding resistor(s) to that necessary for dependable relaying. The maximum ground-fault-tripping current shall not exceed 25 amperes.

(3) All high voltage switch gear and control for equipment having a nameplate rating exceeding 1,000 volts are located remotely and operated by remote control at the main equipment. Potential for remote control shall not exceed 120 volts.

(4) Portable (trailing) cable for equipment with nameplate ratings from 661 volts through 1,000 volts shall include grounding conductors, a ground check conductor, and grounded metallic shields around each power conductor or a grounded metallic shield over the assembly; except that on machines employing cable reels, cables without shields may be used if the insulation is rated 2,000 volts or more.

(5) Portable (trailing) cable for equipment with nameplate ratings from 1,001 volts through 4,160 volts shall include grounding conductors, a ground check conductor, and grounded metallic shields around each power conductor.

(6) MSHA reserves the right to require additional safeguards for high-voltage equipment, or modify the requirements to recognize improved technology.

§ 18.48 Circuit-interrupting devices.

(a) Each machine shall be equipped with a circuit-interrupting device by means of which all power conductors can be deenergized at the machine. A manually operated controller will not be acceptable as a service switch.

(b) When impracticable to mount the main-circuit-interrupting device on a machine, a remote enclosure will be acceptable. When contacts are used as a main-circuit-interrupting device, a means for opening the circuit shall be provided at the machine and at the remote contactors.

(c) Separate two-pole switches shall be provided to deenergize power conductors for headlights or floodlights.

(d) Each handheld tool shall be provided with a two-pole switch of the ''dead-man-control'' type that must be held closed by hand and will open when hand pressure is released.

(e) A machine designed to operate from both trolley wire and portable cable shall be provided with a transfer switch, or equivalent, which prevents energizing one from the other. Such a switch shall be designed to prevent electrical connection to the machine frame when the cable is energized.

(f) Belt conveyors shall be equipped with control switches to automatically stop the driving motor in the event the belt is stopped, or abnormally slowed down.

NOTE: Short transfer-type conveyors will be exempted from this requirement when attended.

§ 18.49 Connection boxes on machines.

Connection boxes used to facilitate replacement of cables or machine components shall be explosion-proof. Portable-cable terminals on cable reels need not be in explosion-proof enclosures provided that connections are well made, adequately insulated, protected from damage by location, and securely clamped to prevent mechanical strain on the connections.

§ 18.50 Protection against external arcs and sparks.

Provision shall be made for maintaining the frames of all off-track machines and the enclosures of related detached components at safe voltages by using one or a combination of the following:

(a) A separate conductor(s) in the portable cable in addition to the power conductors by which the machine frame can be connected to an acceptable grounding medium, and a separate conductor in all cables connecting related components not on a common chassis. The cross-sectional area of the additional conductor(s) shall not be less than 50 percent of that of one power conductor unless a ground-fault tripping relay is used, in which case